

With the penetration of drone technology - is aviation on the verge of another revolution?

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In recent years, the drone sector has witnessed growth and development globally and more particularly within the country. Whilst at first the usage was limited to government entities, but over a period of time these have come to be used in multiple sectors, such as agriculture, land mapping, surveillance, traffic regulation, defence etc.

The global market for drones which was projected to be at \$27.2b in 2020, is expected to grow to \$58.5b by 2026 at Compound Annual Growth Rate (CAGR) of 13.9% and according to a forecast by FICCI, the Indian drone market and the counter-drone market is expected to reach up to \$40 billion by 2030. Owing to technological advancements, increased awareness about drones, and the possibility of utilization of drones in businesses and the penetration it can create, the Indian drone market has also shown significant development and is predicted to grow at a CAGR of 20.9% from 2020 to 2026.

The Government of India has taken certain key initiatives in the sector to provide necessary support in terms of regulatory approvals, financing requirements and operations and the DGCA and MoCA have made substantial progress in this regard. Important developments inter alia include, the initiation of the GARUD portal which was launched in May 2022, and aims at granting government entities fast-track exemptions for deployment of drones, ease of doing business for start-ups and MSMEs to invest in drone technology by lowering the minimum annual sales threshold to INR 2cr for drones and INR 50 lac for drone components, the Digital Sky Platform, a one-of-a-kind unmanned traffic management (UTM) system that will enable the registration process and licensing of drones and operators, as well as with rapid online clearance to operators for every flight, etc.



The Digital Sky Platform/ DigiSky is indeed a step in the right direction and a much-needed tech platform to implement both operation and procedural aspects – to address both speed and precision with which the drone sector is moving. It amongst other, allows the online registration of devices, pilots, service providers, etc. The other important initiative taken up by MoCA is the Airspace Map. This was introduced on the DigiSky platform showing green, red, and yellow zones to the drone operators, where they can operate their drones.

What are drones?

Drones have the potential to serve nearly every area of the economy, including agriculture, surveillance, mining, geospatial mapping, infrastructure, defence, including during emergencies, transportation, and law enforcement, last mile transport, delivery, cargo and logistics et al. Because of their ease of use and reachability, they also have the potential to generate enormous employment opportunities and economic growth, particularly in remote and geographically inaccessible areas.

Drones are defined under section 3(i) of Drone Rules, 2021 as unmanned aircraft

systems (UAS) which can be operated without a pilot on board. The maximum weight for a drone is 500 Kgs and they are further classified into five (5) categories according to their weight:

Nano Drones	Less than or equal to 250 grams
Micro Drones	Greater than 250 grams and less than or equal to 2 kgs
Small Drone	Greater than 2 kgs and less than or equal to 25 kgs
Medium Drones	Greater than 25 kgs and less than or equal to 150 kgs
Large Drones	Greater than 150 kgs

Drone Rules 2021 - liberalized

The drone rules were first published on March 15, 2021, which was not very well received by the industry and faced a lot of criticism from industry, entrepreneurs, end-users for putting in place and promoting a license-oriented and excessively restricted drone regime. These rules were repealed and replaced by the Drone Rules, 2021 on August 25, 2022 (Drone Rules).

The Drone Rules are more business-oriented as it seems to be keeping in mind the base of entrepreneurs who are

currently leading the sector – both in terms of technological developments and production. The number of forms to be filled has been reduced to 5 from an earlier requirement of 25 forms. Instead of a drone license, the current regulations require only the Remote Pilot Certificate issued by DGCA through the DigiSky Platform. A very important and far-sighted change was also to now include drones weighing 500kg within the definition of drones. The DigiSky Platform is also being developed as a business-friendly single-window online system and self-generated permission mechanism.

The PLI scheme and the decision of the government to disallow drone imports are all steps in the direction of giving impetus to the domestic market. Drone makers will receive a 20% incentive under PLI system and more corporations and market leaders are expected to invest in drone technology as a result of this program. The Drone Rules also consist of Standard Operating Procedures for the use of drones in the farming sector etc.

The government is aiming at making India a global hub for drones by 2030 and policy initiatives such as the Drone Certification Scheme, PLI scheme, etc are all efforts

in that direction. The Drone Certification Scheme, which was announced on January 26, 2022, under Rule 7 of the Drone Rules would make type certification of drones easier, swifter, and more transparent.

Drone utilization – key examples in the government sector

- The Indian Railways has implemented the new drone-based surveillance systems. These drones are capable of video streaming, tracking time and also aids to help at the emergency sites.
- **Survey of villages and Mapping with Improvised Technology in Village Areas (SVAMITVA) drones have aided in mapping of inhabited village locations.**
- **During the pandemic, drones have been deployed for vaccine distribution and have also been used to monitor Covid-19 hotspots and confinement zones to ensure that lockdown procedures are followed strictly.**
- **In the defence sector drones were being used to conduct serious operations during times of emergencies. The Defence Research and Development Organization (DRDO) has created its own drone programs. The main aim of these programs is to develop a domestic arsenal to augment and replace the existing fleet of drones.¹**

Union Budget 2022-2023

The drone sector continues to have government's attention as was showcased by the Union Budget 2022-23. A number of projects such as the Drone Shakti, was introduced in the Union budget and demonstrates the government's vision of providing support to the industry. Kisan drones, which was introduced in the budget proposition is another such initiative towards crop evaluation, digitization of land records, and spraying of fertilizers.

Drone-AS-A-Service (DRaaS) was introduced under the Drone Shakti scheme and allows service providers to communicate the benefits of technology to clients in all sectors with no capital investment and thus providing access to the entire eco system for collaboration

and growth. This is particularly important as developing tech is expensive and may become a challenge for multiple startups.

The Directorate General of Foreign Trade vide notification dated February 2, 2022, prohibited the import of foreign drones i.e., completely built up (CBU), completely knocked down (CKD), or semi-knocked down (SKD) though the prohibition does not include imports "for the sake of defence, protection, and research and development".

Sustainability

The drone infrastructure and focused development definitely is an initiative which supports global goal of reduction in carbon emissions and aligns well with India's commitment to COP26. Multiple corporations in India and globally are invested to achieve this objective.

Zipline, for instance is a medical product delivery company, which manufactures, operates, and designs drones. The zipline drones in Maharashtra delivered the covid vaccines and emergency medicines. Drones can fly in a near-direct path to their delivery location, cutting the distance traveled significantly. Not only does it make deliveries faster, but it also decreases carbon emissions significantly. Medicine from the Sky is another such initiative taken up by the government of Telangana, which uses drones to distribute medications and vaccines to remote locations.

Per the Drone Policy, the government also aims at introducing air taxis in the near future. There has been a continuous effort towards simplifying the process of obtaining a drone license and simultaneously building drone corridors to facilitate freight delivery. Chandigarh was the first city in India to operate an air taxi service.

Air taxis and the electric vertical take-off and Landing (e-VTOL) and the usage of sustainable aviation fuel, in the longer run can definitely bring down carbon footprint that the industry has. Tech Eagle teamed up with the government of Meghalaya under the Smart Village Movement to demonstrate how a hybrid e-VTOL drone can carry vital drugs. It was the first time probably that a hybrid e-VTOL drone was operated in the country.

Conclusion

The Covid outbreak has definitely served as a trigger to showcase the need and reach of drones and the government seems to have taken charge of the sector with a view to supporting it with right policy decisions to achieve multiple objectives of growth, connectivity, technology, speed, penetration and sustainability. The liberalized Drone Rules and the announcements made in the Union Budget 2022-23 are not only indicative of government's commitment but are also key steps in the direction of a sustainable growth story in the Indian aviation sector and otherwise.

